

Curriculum Vita

personality

Full name: Mohammad Zhiani
Professor of Physical Chemistry
(Surface Electrochemistry, Electrochemical Energy
production; Fuel cells, Electrolyzers)

birthday: 11/07/1975

Address:

1- Faculty of chemistry, Isfahan university
of Technology, Isfahan, Iran

2- Department of Chemistry, Tarbiat Modares University (TMU), P.O. Box 14115-
175, Tehran, Iran

Tel/Fax: +98 21-82883495

E-mail: Mohammad.zhiani@gmail.com



Education

2010- Summer sabatical in ICCOM CNR- Italy

2006- 2008 :

Postdoc – CNR- Florance- Italy.
& Acta- SpA high-tech society in Lavoria (Pisa).

Developing new electrocatalysts and MEAs for Fuel cells, (PEMFC, DMFC, DAFC)
single and stack cells, Ammonia and water electrolyzers, Ethanol reforming

2000 – 2005:

Ph.D. (Physical Chemistry), University of Tarbiat Modarres, Tehran, Iran.
GPA: 17.09/20

Thesis Title: Design and Construction of novel membrane electrode assembly
nanostructure in polymer electrolyte fuel cell & characterization of physico-chemical
properties using electrochemical and spectroscopic techniques.
Grade: 19.9/20.

1998 – 2000:

M.Sc. Physical Chemistry), University of Tarbiat Modarres, Tehran, Iran. GPA:
17.52/20.00.

Project: Design and Construction of Phosphoric Acid Fuel Cell using GDE
modified with conductive polymer. Grade: 19.5/20.

1994-1998

B.Sc(pure Chemistry), University of Tabriz, Tabriz, Iran. GPA: 16 34/20.00.

Project: Design and Construction of pH sensor using *polyaniline film*.
Grade: 20/20.

Awards and Honors

- Selected project, National, 2nd Elm Ta Amal-1390 (2011)
- Selected Researcher in Isfahan State – 1391 (2012)

Work experience

- **October 2018 up to Now**– Full professor of Physical chemistry in Isfahan University of Technology, Isfahan, Iran
- **November 2013 up to October 2018**– Associate professor of Physical chemistry in Isfahan University of Technology, Isfahan, Iran
- **February 2008 up to December 2013**—Assistant professor of Physical chemistry in Isfahan University of Technology, Isfahan, Iran
- **2010; Summer sabbatical stage** ; ICCOM- CNR Florence Italy
- **May 2006 – February 2008**, Member of R&D group of ACTA S.P.A in Italy and as a Posdoc student in ICCOM-CNR, Florence, Italy.
- *Developing new electrocatalysts and MEAs for Fuel cells, (PEMFC, DMFC, DAFC) single and stack cells, Ammonia and water electrolyzers, Ethanol reforming*
- **September 2004 – May 2006** , Material Group, R&D Center, Iran Khodro Co.
- **October 2003- September 2004** – Hybrid Vehicle Group ,Electronic and Electric Dept., R&D Center, Iran Khodro Co.
- *Research on different type of battery and fuel cell for application in hybrid vehicles.*
- **January 2000 – October 2003**, Member of MEA group ,Fuel Cell Dept., R&D Center, Iran Khodro Co.
- *Research on different methods for preparation and evaluation of MEA in PEMFC .*

Teaching

February 2008- present, Isfahan university of Technology,

Graduate courses : a - Electrochemical energy materials (PhD)

(Fuel cells, Electrolyzers, Surfactants,...)

- b- Surface Chemistry (MS)
- c- Hydrogen and fuel cell (Msc)
- d- New aspect in Electrochemisrty (PhD)

Under Graduate courses: a- Physical Chemistry for engineering

- b- Physical Chemistry II
- c- General chemistry for engineering
- d- new aspect in chemistry
- e– surface chemistry and solid state

Novamner. 2004 – May 2006, Physical chemistry Instructor . Islamic republic educational center, Tehran,, Iran.

Sep. 2001 – sep. 2002, Teaching Assistant (New aspect of physical chemistry) at Educational center of breliant talents, Tehran, Iran.

1. Novamner. 2004 – May 2006, Physical chemistry Instructor . Islamic republic educational center, Tehran,, Iran.

2. Sep. 2001 – sep. 2002, Teaching Assistant (New aspect of physical chemistry) at Educational center of breliant talents, Tehran, Iran.

Skills

- *Developing of new electro-catalysts and MEA for different types of fuel cells (PEMFC, DMFC, DAFC)*
- *Construction and Evaluation of Electrolyzes (AEMWE, PEMWE, HER & OER catalysts)*
- *Hydrogen generators: (PEMWE, AEMWE,performance analysis& diagnosis)*
- *Preparation, Evaluation and performance analysis of Batteries*
- *Fuel Cell & Batteries & Electrolyzers Testing and Diagonistic*

Publication

56. S. M.Seyed Bagheri, H.Gharibi, **M. Zhiani** Introduction of a A new active and stable cathode catalyst based on bimetal-organic frameworks/PPy-sheet for alkaline direct ethanol fuel cell, International Journal of Hydrogen Energy Volume 47, Issue 56, 2022, Pages 23552-23569. <https://doi.org/10.1016/j.ijhydene.2022.05.142>

55. M. Jafari, H. Gharibi, M. Kazemi, A. Heydari, **M. Zhiani**, M. J Parnian-nitrogen co-doped hierarchical porous carbon derived from the bimetallic metal-organic framework as ORR electrocatalyst for passive alkaline direct ethanol fuel cell, Journal of Electroanalytical Chemistry, Volume 920, 2022, 116620. <https://doi.org/10.1016/j.jelechem.2022.116620>

54. Leila Rostami, Masoud Haghshenasfard, Morteza Sadeghi, **Mohammad Zhiani** 'A 3D CFD model of novel flow channel designs based on the serpentine and the parallel design for performance enhancement of PEMFC' Energy, Volume 258, 2022, 124726. <https://doi.org/10.1016/j.energy.2022.124726>

53- Fatemeh Arshadi Hussein Gharibi, Ali Morsali, **M. Zhiani**, A novel electrocatalyst based on Fe-ZIF-PPY nanocomposite for oxygen reduction reaction in air-breathing direct-ethanol fuel cell, Applied Surface Science, Volume 584, 15 May 2022, 152529. <https://doi.org/10.1016/j.apsusc.2022.152529>

52- **Mohammad Zhiani**, Saeid Barzi, Amirhossein Azhari, Ex vivo energy harvesting by a by-pass depletion designed abiotic glucose fuel cell operated with real human blood serum, Journal of Power Sources Volume 521, 15 February 2022, 230972. <https://doi.org/10.1016/j.jpowsour.2021.230972>

51- **Mohammad Zhiani**, Marzieh Gholamian, Saeid Barzi, Pd electrodeposition on a novel substrate of reduced graphene oxide/ poly(melem-formaldehyde) nanocomposite as an active and stable catalyst for ethanol electrooxidation in alkaline media ,International Journal of Hydrogen , Volume 47, Issue 6, 19 January 2022, Pages 3801-3813. <https://doi.org/10.1016/j.ijhydene.2021.11.033>

50- H Gharibi, N Dalir, M Jafari, MJ Parnian, **M Zhiani**, Engineering dual metal single-atom sites with the nitrogen-coordinated nonprecious catalyst for oxygen reduction reaction (ORR) in acidic electrolyte, Applied surface science, Volume 572, 15 January 2022, 151367

49- M Gholamian, **M Zhiani**, S Barzi, A comparative study of Pd/rGO and Pd–Cu/rGO toward electrooxidation of low ethanol concentrations for fuel cell-based breath alcohol analyzer application

48- Z Karami, M Youssefi, K Raeissi, **M Zhiani**, Effect of the morphology of silver layer on electrical conductivity and electrochemical performance of silver/reduced graphene oxide/cotton fabric composite as a flexible , Journal of Energy Storage , Volume 42, October 2021, 103042...

47- K Firouz Tadavani, A Abdolmaleki, MR Molavian, **M Zhiani**, New Strategy Based on Click Reaction for Preparation of Cross-Linked Poly (Benzimidazolium-Imide) as an Anion-Exchange Membrane with Improved Alkaline Stability

- 46- Z Karami, M Youssefi, K Raeissi, **M Zhiani**, An efficient textile-based electrode utilizing silver nanoparticles/reduced graphene oxide/cotton fabric composite for high-performance wearable supercapacitors, *Electrochimica Acta*, Volume 368, 1 February 2021, 137647.
- 45- S Kamali, **M Zhiani**, H Tavakol, Synergism effect of first row transition metals in experimental and theoretical activity of NiM/rGO alloys at hydrogen evolution reaction in alkaline electrolyzer, *Renewable Energy* Volume 154, July 2020, Pages 1122-1131
- 44- **M Zhiani**, S Barzi, M Gholamian, A Ahmadi, Synthesis and evaluation of Pt/rGO as the anode electrode in abiotic glucose fuel cell: Near to the human body physiological condition, *International Journal of Hydrogen Energy*, Volume 45, Issue 24, 5 May 2020, Pages 13496-13507
- 43- F Madadi, A Rezaeian, H Edris, **M Zhiani** ,Improving performance in PEMFC by applying different coatings to metallic bipolar plates
- 42- S Barzi, **M Zhiani**, A Ahmadi , Evaluation of carbon supported Fe–Co electrocatalyst for selective oxygen reduction to use in implantable glucose fuel cell, *International Journal of Hydrogen Energy*, Volume 44, Issue 59, 29 November 2019, Pages 31515-31524.
41. Mohammad Mohammadi Taghiabadi, **Mohammad Zhiani**, Valter Silva. **Effect of MEA activation method on the long-term performance of PEM fuel cell**, *Applied Energy*, 242 (2019) 602-11
Doi: 10.1016/j.apenergy.2019.03.157
40. Mohammad Mohammadi Taghiabadi, **Mohammad Zhiani**. **Degradation analysis of dead-ended anode PEM fuel cell at the low and high thermal and pressure conditions**, *International Journal of Hydrogen Energy*, 44 (2019) 4985-95
Doi: 10.1016/j.ijhydene.2019.01.040
39. Sharif Jannat, Hamed Rashtchi, Masoud Atapour, Mohammad Ali Golozar, , **Mohammad Zhiani**, Preparation and performance of nanometric Ti/TiN multi-layer physical vapor deposited coating on 316L stainless steel as bipolar plate for proton exchange membrane fuel cells , *Journal of Power Sources*, Volume 435, 30 September 2019.
Doi; 10.1016/j.jpowsour.2019.226818
38. Koorosh Firouz Tadavani, Amir Abdolmaleki, Mohammad Reza Molavian, **Mohammad Zhiani**, A mechanically robust multication double-network polymer as an anion-exchange membrane: High ion conductivity and excellent chemical stability, *Polymer*, Volume 178, 12 September 2019,

37. M. Jafari, H. Salamati, M. Zhiani, E. Shahsavari. **Enhancement of an IT-SOFC cathode by introducing YSZ: Electrical and electrochemical properties of $\text{La}_{0.6}\text{Ca}_{0.4}\text{Fe}_{0.8}\text{Ni}_{0.2}\text{O}_3$ -d-YSZ composites**, International Journal of Hydrogen Energy, 44 (2019) 1935-66

Doi: 10.1016/j.ijhydene.2018.10.151

36. Mohammad Zhiani, Amir Abedini, Somayeh Majidi. **Comparison of Electro-Catalytic Activity of Fe-Ni-Co/C and Pd/C Nanoparticles for Glucose Electro-Oxidation in Alkaline Half-Cell and Direct Glucose Fuel Cell**, Electrocatalysis, 9 (2018) 735-43

Doi:10.1007/s12678-018-0483-1

35. Fariba Jalili, Mohammad Zhiani, Saeedeh Kamali. **Preparation and evaluation of a new hybrid support based on exfoliation of graphite by ball milling for Ni nanoparticles in hydrogen evolution reaction**, International Journal of Hydrogen Energy, 43 (2018) 21187-95

Doi: 10.1016/j.ijhydene.2018.09.202

34. Mohammad Mohammadi Taghiabadi, Mohammad Zhiani, Mahboobeh Shahfiei. **Influence of the Cathode Catalyst Layer Void Volume on the Short-term and Long-term Performance of PEM Fuel Cell**, Fuel Cells, 18 (2018) 731-41

DOI: 10.1002/fuce.201800023

33. Mohammad Reza Movahedi, Amir Abdolmaleki, Hamidreza Gharibi, Koorosh FirouzTadavani, Mohammad Zhiani, ***Two highly strong semi-IPNs for proton exchange membrane fuel cell (PEMFC) application***, Materials today Communication, 15 (2018) 94-99

Doi:10.1016/j.mtcomm.2018.03.001

32. Hamed Rashtchi, Yasna Acevedo Gomez, Keyvan Raeissi, Morteza Shamanian, Björn Eriksson, Mohammad Zhiani, Carina Lagergrenand, Rakel Wreland Lindström, ***Performance of a PEM Fuel Cell Using Electroplated Ni-Mo and Ni-Mo-P Stainless Steel Bipolar Plates***, Journal of Electrochemical Society, 164, (2017)1427-1436

doi: 10.1149/2.0771713jes

31. ValterSilva, DanielaEusébio, JoãoCardoso, MohammadZhiani, Somayeh Majidi, ***Targeting optimized and robust operating conditions in a hydrogen-fed Proton Exchange Membrane Fuel Cell***, Energy Conversion and Management, 154 (2017) 149-156

doi.org/10.1016/j.enconman.2017.10.053

30. MohammadZhiani, Fariba Jalili, Saeede Kamali, ***In situ cathode polarization measurement in alkaline anion exchange membrane water***

electrolyzer equipped with a PdNiFeCo/C-Ceria hydrogen evolution electrocatalyst, International Journal of Hydrogen Energy **42** (2017) 26563-26574

DOI: 10.1016/j.ijhydene.2017.09.038

29. Mohammad Reza Molavian, Amir Abdolmaleki, Koorosh Firouz Tadavani, ***Mohammad Zhiani***, **A new sulfonated poly(ether sulfone) hybrid with low humidity dependence for high temperature proton exchange membrane fuel cell applications**, Applied Polymer, **34** (2017) 45342
doi.org/10.1002/app.45342

27. Koorosh Firouz Tadavani, Amir Abdolmaleki, Mohammad Reza Molavian, Sedigheh Borandeh, Elahe Sorvand, and ***Mohammad Zhiani***, **Synergistic behavior of phosphonated and sulfonated groups on proton conductivity and their performance for high-temperature proton exchange membrane fuel cells (PEMFCs)** Synergistic behavior of phosphonated and sulfonated groups on proton conductivity and their performance for high-temperature proton exchange membrane fuel cells (PEMFCs), Energy Fuels, **31** (2017), 11460–11470

DOI: 10.1021/acs.energyfuels.7b01065

27. **Mohammad Zhiani**, Saeedeh kamali, *Synergistic Effect of Ceria on the Str. Evolution Activity of Nickel Nanoparticles Grown on the Reduced Graphene Oxide* Chemistry A, **5**, (2017), 8108-8116.

DOI: 10.1039/c7ta00146k.

26. **Mohammad Zhiani**, Fariborz Chitsazzadeh, *Synergistic Ion Intercalations for of Li-Doped Graphene Nanosheets as an Efficient Electrocatalyst for Oxygen Red* Volume 8, Issue 2, pp 170–177.

25. **M. Zhiani**, I. Mohammadi, S. Majidi, ***Membrane electrode assembly steaming as a novel pre-conditioning procedure in proton exchange membrane fuel cell***, International Journal of Hydrogen Energy, Volume 42, Issue 7, 16 February 2017, Pages 4490-4500

24. S. Meghdadi, M. Amirnasr, **M. Zhiani**, F. Jalili, M. Jari, M. Kiani (2016) **Facile Synthesis of Cobalt Oxide Nanoparticles by Thermal Decomposition of Cobalt(II) Carboxamide Complexes: Application as Oxygen Evolution Reaction Electrocatalyst in Alkaline Water Electrolysis**, Electrocatalysis, 2017, Volume 8, Issue 2, pp 122–131.

23. **M. Zhiani**, S. Majidi, V. B. Silva, H. Gharibi (2016) **Comparison of the performance and EIS (electrochemical impedance spectroscopy) response of an activated PEMFC (proton exchange membrane fuel cell) under low and high thermal and pressure stresses**, Energy, **97**, 560-567

22. **M. Zhiani**, S. Kamali, S. Majidi (2016) ***In-plane gas permeability and***

thought-plane resistivity of the gas diffusion layer influenced by homogenization technique and its effect on the proton exchange membrane fuel cell cathode performance, International Journal of Hydrogen Energy, 41, 1112-1119

21. A. Abdolmaleki, **M. Zhiani**, M. Maleki, S. Borande (2015) **Preparation and evaluation of sulfonated polyoxadiazole membrane containing phenol moiety for PEMFC application**, Polymer, 75, 17-24

20. **M. Zhiani**, I. Mohammadi and N. Salehi (2015) **Carbon supported Fe–Co nanoparticles with enhanced activity and BH₄[–] tolerance used as a cathode in a passive air breathing anion exchange membrane direct borohydride fuel cell**, RSC Adv., 5, 23635-23645
DOI: 10.1039/C4RA12857E

19. **Zhiani, M.**, Majidi, S., Rostami, H., Taghiabadi, M.M. **Comparative study of aliphatic alcohols electrooxidation on zero-valent palladium complex for direct alcohol fuel cells**
(2015) International Journal of Hydrogen Energy, 40 (1), pp. 568-576.
DOI: 10.1016/j.ijhydene.2014.10.144

18. **Zhiani, M.**, Majidi, S. **Effect of gas diffusion electrode pre-treatment by ultrasonic bath cleaning technique on proton exchange membrane fuel cell performance**
(2014) International Journal of Hydrogen Energy, 39 (24), pp. 12870-12877.
DOI: 10.1016/j.ijhydene.2014.06.092

17. **Zhiani, M.**, Majidi, S., Taghiabadi, M.M. **Comparative study of on-line membrane electrode assembly activation procedures in proton exchange membrane fuel cell**
(2013) Fuel Cells, 13 (5), pp. 946-955.
DOI: 10.1002/fuce.201200139

16. Mallakpour, S., **Zhiani, M.**, Barati, A., Rostami, H. **Improving the direct methanol fuel cell performance with poly(vinyl alcohol)/titanium dioxide nanocomposites as a novel electrolyte additive**
(2013) International Journal of Hydrogen Energy, 38 (28), pp. 12418-12426.
DOI: 10.1016/j.ijhydene.2013.07.032

15. **Zhiani, M.**, Majidi, S. **Effect of MEA conditioning on PEMFC performance and EIS response under steady state condition**
(2013) International Journal of Hydrogen Energy, 38 (23), pp. 9819-9825.

DOI: 10.1016/j.ijhydene.2013.05.072

14. **Zhiani, M., Jalili, J., Rezaei, B., Taghiabadi, M.M. Methanol electrooxidation on synthesized PtRu nanocatalyst supported on acetylene black in half cell and in direct methanol fuel cell**

(2013) International Journal of Hydrogen Energy, 38 (13), pp. 5419-5424.

DOI: 10.1016/j.ijhydene.2012.12.088

13. **Zhiani, M., Rostami, H., Majidi, S., Karami, K. Bis (dibenzylidene acetone) palladium (0) catalyst for glycerol oxidation in half cell and in alkaline direct glycerol fuel cell**

(2013) International Journal of Hydrogen Energy, 38 (13), pp. 5435-5441.

DOI: 10.1016/j.ijhydene.2012.09.001

12. **Kakaei, K., Zhiani, M. new method for manufacturing graphene and electrochemical characteristic of graphene-supported Pt nanoparticles in methanol oxidation**

(2013) Journal of Power Sources, 225, pp. 356-363.

DOI: 10.1016/j.jpowsour.2012.10.003

11. **Zhiani, M., Gharibi, H., Kakaei, K. Performing of novel nanostructure MEA based on polyaniline modified anode in direct methanol fuel cell**

(2012) Journal of Power Sources, 210, pp. 42-46.

DOI: 10.1016/j.jpowsour.2012.02.081

10. **Gharibi, H., Kakaei, K., Zhiani, M., Taghiabadi, M.M. Effect of polyaniline-doped trifluoromethane sulfonic acid nanofiber composite film thickness on electrode for methanol oxidation**

(2011) International Journal of Hydrogen Energy, 36 (20), pp. 13301-13309.

DOI: 10.1016/j.ijhydene.2010.09.080

9. **Zhiani, M., Gasteiger, H.A., Piana, M., Catanorchi, S. Comparative study between platinum supported on carbon and non-noble metal cathode catalyst in alkaline direct ethanol fuel cell (ADEFC)**

(2011) International Journal of Hydrogen Energy, 36 (8), pp. 5110-5116. DOI: 10.1016/j.ijhydene.2011.01.079

8. **Zhiani, M., Gharibi, H., Kakaei, K. Optimization of Nafion content in Nafion-polyaniline nano-composite modified cathodes for PEMFC application**

(2010) International Journal of Hydrogen Energy, 35 (17), pp. 9261-9268.
DOI: 10.1016/j.ijhydene.2010.04.019

7. Zhiani, M., Rezaei, B., Jalili, J. Methanol electro-oxidation on Pt/C modified by polyaniline nanofibers for DMFC applications

(2010) International Journal of Hydrogen Energy, 35 (17), pp. 9298-9305.
DOI: 10.1016/j.ijhydene.2010.03.050

6. Gharibi, H., Kakaei, K., Zhiani, M. Platinum nanoparticles supported by a vulcan XC-72 and PANI doped with trifluoromethane sulfonic acid substrate as a new electrocatalyst for direct methanol fuel cells

(2010) Journal of Physical Chemistry C, 114 (11), pp. 5233-5240.
DOI: 10.1021/jp9119414

5. Bambagioni, V., Bianchini, C., Marchionni, A., Filippi, J., Vizza, F., Teddy, J., Serp, P., Zhiani, M. Pd and Pt-Ru anode electrocatalysts supported on multi-walled carbon nanotubes and their use in passive and active direct alcohol fuel cells with an anion-exchange membrane (alcohol = methanol, ethanol, glycerol)

(2009) Journal of Power Sources, 190 (2), pp. 241-251.
DOI: 10.1016/j.jpowsour.2009.01.044

4. Kheirmand, M., Gharibi, H., Abdullah Mirzaie, R., Faraji, M., Zhiani, M. Study of the synergism effect of a binary carbon system in the nanostructure of the gas diffusion electrode (GDE) of a proton exchange membrane fuel cell

(2007) Journal of Power Sources, 169 (2), pp. 327-333.
DOI: 10.1016/j.jpowsour.2007.03.053

3. Gharibi, H., Zhiani, M., Mirzaie, R.A., Kheirmand, M., Entezami, A.A., Kakaei, K., Javaheri, M. Investigation of polyaniline impregnation on the performance of gas diffusion electrode (GDE) in PEMFC using binary of Nafion and polyaniline nanofiber

(2006) Journal of Power Sources, 157 (2), pp. 703-708.
DOI: 10.1016/j.jpowsour.2005.11.044

2. Gharibi, H., Zhiani, M., Entezami, A.A., Mirzaie, R.A., Kheirmand, M., Kakaei, K. Study of polyaniline doped with trifluoromethane sulfonic acid in gas-diffusion electrodes for proton-exchange membrane fuel cells

(2006) Journal of Power Sources, 155 (2), pp. 138-144.
DOI: 10.1016/j.jpowsour.2005.05.016

1. Gharibi, H., Mirzaie, R.A., Shams, E., **Zhiani, M.**, Khairmand, M. **Preparation of platinum electrocatalysts using carbon supports for oxygen reduction at a gas-diffusion electrode**

(2005) Journal of Power Sources, 139 (1-2), pp. 61-66.

DOI: 10.1016/j.jpowsour.2004.06.075

Book

1- PEM Fuel Cells; Theory and Practice, By: F.Barbir, Translated in persian by: M.Zhiani

Research Projects

More than 20 Projects in PEMFC(MEA preparation&diagonistic), Electrolyzers (PEMWE, AEMWE) and Li/SOCl₂ Battery, selected are;

- 1- Fisibility study and conceptual design of an air indipendent propulsion system based on fuel cell , 1388-1390, Shahin shahr – Subsea institue
- 2- Design and construction of a fuel cell test staion with capacity of 100W , 1390-1391, Iran National Science Foundation (INSF)
- 3- Design and construction of a charger based on muti fuel air breathing fuel cell ,1392 -1392, Iran National Science Foundation (INSF)
- 4- MEA development for **Air beathing direct alcohole fuecells**
- 5- MEA development for **Implantable Glocuse fuel cell**,
- 6- H₂ generator preparation base on AEMWE with capacity of 300ml/min.

Conferences

1. *Synthesis and evaluation of Fe/rGO electro catalyst by different reducing agents for HER in alkaline media, 4th Hydrogen & Fuel Cell conference, 2017*
2. *Comparison of nickel copper and brass sheets as electrodes for oxygen evolution reaction in alkaline media, 4th Hydrogen & Fuel Cell conference, 2017*
3. *Study of hydrogen evolution reaction activity on nickel copper brass stainless steel in alkaline media, 4th Hydrogen & Fuel Cell conference, 2017*
4. *Decreasing the effect of Kinetic polarization by using reduced graphene oxide as an electrocatalyst for cathode support in lithium thionyl chloride battery,12th I Biennial Electrochemistry seminar 2017*
- 5-*Evaluation of alkaline hydrogen evolution reaction enhancing on Ni-Co/rGO in comparision to Ni/rGO,12th I Biennial Electrochemistry seminar 2017*

6. *Preparation and Evaluation of Nanocomposite Membranes Based on Sulfonated Graphene Oxide and Carbon Nanotube for Aluminum Air Batteries*, 12th Iranian Electrochemistry seminar, 2016
7. *OPTIMIZATION OF CATALYST LAYER NAFION CONTENT IN PEMFC CATHODE ELECTRODE MADE BY BALLARD CARBON PAPER AS ELECTRODE SUBSTRATE*, 19th Iranian Physical chemistry seminar, 2016
8. *Effect of operation conditions of the MEA activation procedure on the PEMFC performance* EndFragment, 3rd Hydrogen & Fuel Cell conference, 2016
9. *Electrochemical Analysis of Anodic Catalysts in Direct Borohydride Fuel Cell*, 8th Iranian Fuel Cell seminar, 2016
10. *Effect of Potential Cyclic and External Humidity Injection on Proton Exchange Membrane Fuel Cell Performance*, 8th Iranian Fuel Cell seminar, 2016
11. *Investigation of Electrochemical Impedance Spectroscopy Response of Membrane Electrode Assembly with Time in the PEMFCs*, 8th Iranian Fuel Cell seminar, 2016
12. *Analysis of Membrane Electrode Assembly Performance with Time in the PEMFC*, 8th Iranian Fuel Cell seminar, 2016
13. *Evaluation of a Porous Nano Structure Electrode Base on Pt-Free Nano Catalyst for Direct 2-Propanol Fuel Cell*, 8th Iranian Fuel Cell seminar, 2016
14. *Effect of operation conditions of the MEA activation procedure on the PEMFC performance*, 3th Hydrogen & Fuel Cell Conference, 2015, IROST, Tehran
15. *Preparation and evaluation of Copper particles on reduced graphene oxide as an efficient electrocatalyst for enhancing electrochemical performance of the Lithium-Thionyl Chloride Batteries*, Graphen Malaysia, 2016
16. *Reduction of Voltage Delay and Improving the Shelf Life of Li/SOCl₂ Battery System by Using Poly-Vinyl Chloride (PVC) as an Electrolyte Additive*, 12th Iranian Electrochemistry seminar, 2016
17. *Decreasing the effect of kinetic polarization by using reduced graphene oxide as an electrocatalyst for cathode support in lithium thionyl chloride battery*, 12th Iranian Electrochemistry seminar, 2016
18. *Evaluation of alkaline hydrogen evolution reaction enhancing on Ni-Co/rGO in comparison to Ni/rGO ride battery*, 12th Iranian Electrochemistry seminar, 2016
19. *Electrooxidation of glucose on the Pt-free nano electrocatalysts in alkaline medium*, 12th Iranian Electrochemistry seminar, 2016
20. *Preparation and Evaluation f New Anode Electrode Microstructure based on Iron-Nikel-Cobat Nano Catalyst for Direct Fuel Cell 1- Propanol*, 8th Iranian Fuel Cell Seminar, 2015

21. *Evaluation of a Porous Nano Structure Electrode Base on Pt-Free Nano Catalyst for Direct 2-Propanol Fuel Cell, 8th Iranian Fuel Cell Seminar, 2015*
22. *Electrochemical Analysis of Anodic Catalysts in Direct Borohydride Fuel Cell , 8th Iranian Fuel Cell Seminar,2015*
23. *Performance Comparison of the Two Commercial PEMFC Electrode Substrate: Tory and Ballard Carbon Paper, 8th Iranian Fuel Cell Seminar,2015*
24. *Effect of Potential Cyclic and External Humidity Injection on Proton Exchange Membrane Fuel Cell Performance, 8th Iranian Fuel Cell Seminar,2015*
25. *Analysis of Membrane Electrode Assembly Performance with Time in the PEMFC, 8th Iranian Fuel Cell Seminar,2015*
26. *Investigation of Electrochemical Impedance Spectroscopy Responce of Membrane Electrode Assembly with Time in the PEMFCs , 8th Iranian Fuel Cell Seminar, 2015*
27. *Electrooxidation of glucose on the Pt-free nano electrocatalysts in alkaline medium, 10th Iranian Electrochemistry Seminar, 2014*
28. *Preparation and evaluation of alkaline direct glucose fuel cell based on Pt free anode catalyst, 10th Iranian Electrochemistry Seminar, 2014*
29. *Electrochemical Analysis of a PEMFC under Different Operation Condition, 20th Iranian Analytical Chemistry Conference 2014*
30. *AC Impedance Characteristics of a PEM Fuel Cell under Different Gas Feed Modes; H₂/O₂ and H₂/Air, 20th Iranian Analytical Chemistry Conference 2014*
31. *Preparation and Evaluation of a Porous Anode Electrde Base on Pt-free Nano Catalysts for Direct Ethylene glycol Fuel Cell (DEGFC), 17th Iranian Physical Chemistry conference,2014*
32. *Electrochemical Analysis of Low-cost Nanocatalysts in Cathodic Reactions of Direct Borohydride Fuel Cell, 20th Iranian Analytical Chemistry Conference 2014*
33. *Comparative Study of Platinum and Non-Platinum Cathode Nanocatalysts in Direct Borohydride Fuel Cell, 6th Iranian Fuel Cell Seminar,2013*
34. *Effect of nafion content on cathode catalyst layer void volume and PEMFC*

performance, 9th Iranian Electrochemistry Seminar 2013

35. Performance Analysis of a PEM Fuel Cell at Different Cathode Relative Humidity, 9th Iranian Electrochemistry Seminar 2013

36. Impedance Response Analysis of PEM Fuel Cell under Different Operation Conditions, 9th Iranian Electrochemistry Seminar 2013

37. Evaluation of non-pt cathode catalyst in alkaline direct borohydride fuel cell, 9th Iranian Electrochemistry Seminar 2013

38 Comparison of EIS Characteristics of PEMFC in H₂/O₂ and H₂/Air Gas Feed modes, 8th Iranian Electrochemistry Seminar 2013

39. Investigation of hydrogen adsorption on palladium-poly aniline composites synthesized by three different methods, 5th Iranian Electrochemistry Seminar, 2012

40. Influence of Cathode Gas Diffusion Layer Ink Formation Procedure on its Properties and Performance of Proton Exchange Membrane Fuel Cell, 5th Iranian Fuel Cell Seminar, 2012

41. Development of Pd(dba)₂ Electrocatalyst for Alcohols Oxidation in Alkaline Media, 5th Iranian Fuel Cell Seminar, 2012

42. Dependence of Mass-Transport Polarization Behavior to the Diffusion Layer Mixing Method in PEM Fuel Cell, 5th Iranian Fuel Cell Seminar, 2012

43. Glycerol Electrooxidation on the Palladium zero electrocatalyst in Alkaline Media, 7th Iranian Electrochemistry Seminar 2011

44. fuel cell in alkaline media 7th Iranian Electrochemistry Seminar 2011

45. Effect of Diffusion Layer Ink Preparation Method on the Permeability and Performance of electrodes in PEMFC 7th Iranian Electrochemistry Seminar 2011

46. Evaluation Air Breathing Direct Alcohol Fuel Cell with different Alcoholic fuels in Alkaline Media, 7th Iranian Electrochemistry Seminar 2011

47. Effect of Catalyst Ink Solvent on the Palladium- Polyaniline Nano-Composites Hydrogen Adsorption, 7th Iranian Electrochemistry Seminar 2011

48. Effect of temperature on the performance of PEMFC prepared by Ballard diffusion medium, 7th Iranian Electrochemistry Seminar 2011

49. *Performing of a Gas Diffusion Layer Made by Pulse Ultrasonic Technique in PEM Fuel Cell*, 7th Iranian Electrochemistry Seminar 2011

50. *platinum nano particles supported by a vulcan and conductive polymer substrate as a new electrocatalyst for PEM*, 4th Iranian Fuel Cell Seminar, 2010

51. *Effect of ionic liquid structure on the performance off DMFCs anode electrode*, 4th Iranian Fuel Cell Seminar, 2010

52. *effect of amount of glutaraaldehyde on behavior of electrospun pva/tio2 membrane for DEFC applications*, 4th Iranian Fuel Cell Seminar, 2010

53. *Investigation of Pd(DBA)₂ activity at glycerol electrooxidation in alkaline media*, 6th Iranian Electrochemistry Seminar 2010

54. *A Novel nanocomposite polymer membrane based on crosslinked electrospun PVA/Tio₂ for alkalone DEFCs*, 6th Iranian Electrochemistry Seminar 2010

55. *Platinum nanocomposite supported by a vulcav and PANI substrate as a new electrocatalyst for oxygen reduction reaction*, 6th Iranian Electrochemistry Seminar 2010

56. *Effect of ionic liquid structure on the performance of DMFCs anode catalyst*, 6th Iranian Electrochemistry Seminar 2010

57 *Prepration and evalution of Pt-Ru/Acetylen Black (AB) catalyst for methanol electrooxidation*, 6th Iranian Electrochemistry Seminar 2010

۵۸. بررسی عملکرد پیل سوختی اکسید جامد تولید شده در گروه پیل سوختی پژوهشگاه نیرو---چهارمین سمینار پیل سوختی ایران، ۲۰۱۰

۵۹. بررسی هیدریدهای فلزی بعنوان ذخیره کننده هیدروژن---چهارمین سمینار پیل سوختی ایران، ۲۰۱۰

۶۰. بررسی عملکرد پیل سوختی از دیدگاه ترمودینامیکی و مقایسه آن با ماشین حرارتی کارنو---چهارمین سمینار پیل سوختی ایران، ۲۰۱۰

61. *Methanol Electrooxidation on Pt/C modified by Polyaniline for DMFC applications*, The First National Conference on Hydrogen & Fuel Cell, 2009

62. *Investigation of Methanol Electro-oxidation on Modified Pt/C by Electrochemical impedance spectroscopy*, 5th Iranian Electrochemistry Seminar, 2009

63. *fuel cells application in subsea industries*, 3h Iranian Fuel Cell Seminar, 2009

64. *Effect of synthetic modifier on the performance of DMFC anode electrode*, 3th Iranian Fuel Cell Seminar, 2009

65. *Comparative Study between Pt and low Cost cathode Catalyst in Alkaline Direct Ethanol Fuel cell (DEFC)*, The First National Conference on Hydrogen & Fuel Cell, 2009
66. *A Novel nano-composite Polymer Membrane based on Crosslinked Electrospun PVA/TiO₂ for ALkaline DMFCs*, 3th Iranian Fuel Cell Seminar, 2009

67. *Comparative Study between Pt/C and low cost cathode Nano-Particle Catalyst in Alkaline Direct Ethanol Fuel Cell(DMFC)*, 11th International Symposium on Solid Oxide Fuel Cells 2009

68. *Methanol Electro-oxidation on Pt/C modified by Polyaniline Nanofibers for DMFC Applications*, 11th International Symposium on Solid Oxide Fuel Cells 2009

69. *Dispersion of Pt nanoparticles onto the Vulcan XC-72 using different solvents for development of PEM fuel cell*, 5th Iranian Electrochemistry Seminar 2009

70. *Platinum/vulcan- polyaniline doped trifluoromethane sulfonic electrodes and their electrocatalytic activity for DMFCs*, 5th Iranian Electrochemistry Seminar 2009

71. *Comparative Study between Pt/C and low cost cathode Nano-Particle Catalyst in Alkaline Direct Ethanol Fuel Cell(DMFC)*, 11th International Symposium on Solid Oxide Fuel Cells 2009

72. *Methanol Electro-oxidation on Pt/C modified by Polyaniline Nanofibers for DMFC Applications*, 11th International Symposium on Solid Oxide Fuel Cells 2009

73. *Dispersion of Pt nanoparticles onto the Vulcan XC-72 using different solvents for development of PEM fuel cell*, 5th Iranian Electrochemistry Seminar 2009

74. *Platinum/vulcan- polyaniline doped trifluoromethane sulfonic electrodes and their electrocatalytic activity for DMFCs*, 5th Iranian Electrochemistry Seminar 2009

75. *Synthesizing and Optimization of High Porous Polyaniline nanofibers in Catalyst Layer for High Performance Methanol Oxidation on Pt/C Substrate*, 5th Iranian Electrochemistry Seminar, 2009

76. J. Jalili, M. Zhiani, and B. Rezaei *Methanol Electro-oxidation on Pt/C Modified by Polyaniline Nanofibers for DMFC Applications*, 216th Meeting- 4-9 October 2009, Vienna, Austria.

77. **M. Zhiani**, H. A. Gasteiger, M. Piana, S. Catanorchi, P. Bert, *Comparative Study between Pt/C and Low Cost Cathode Nano- Particle Catalyst in Alkaline Direct Ethanol Fuel Cell (DEFC)*, 216th Meeting- 4-9 October 2009, Vienna, Austria.

78. J. Jalili, **M.Zhiani**, B. Rezaei, *Investigation of Methanol Electrooxidation on Modified Pt/C by Electrochemical Impedance Spectroscopy*. 5th Electrochemical Society of Iran, 7-8 May 2009, Tarbiat Modarres University, Tehran, Iran.

79. Karim Kakaei, H. Gharibi, **M. Zhiani**, R.A.Mirzaei, *Platinume/volcane- polyaniline doped trifluoromethane sulfonic elctrodes and their electrocatalytic activity for DMFCs*, 5th Electrochemical Society of Iran, 7-8 May 2009, Tarbiat Modarres University, Tehran, Iran.

80. A.Heydari, H.Gharibi, **M.Zhiani**, S.M.Gharighoran, *Dispersion of Pt nanoparticles onto the Vulcan XC-72 using different solvents for development of PEM fuel cell*, 5th Electrochemical Society of Iran, 7-8 May 2009, Tarbiat Modarres University, Tehran, Iran.

81. J.Jalili, **M. Zhiani**, B.Rezaie, *Synthesize and optimization of high porous Nanostructure electrode for methanol oxidation*, 5th Electrochemical Society of Iran, 7-8 May 2009, Tarbiat Modarres University, Tehran, Iran.

82. **M.zhiani**, H. Gasteiger, M. Piana, S. Catanorchi, A. Tampucci , P. Bert, *Comparative Study between Pt and Low Cost cathode catalyst in Alkaline Direct Ethanol Fuel cell (DEFC)*, The First national Conference on hydrogen & Fuel Cell. Jun. 2009, ISUT, Tehran, Iran.

83. **M. Zhiani** , B. Rezaei, J. Jalili, *Methanol electrooxidation on Pt/C modified by PANI for DMFC Application*, The First national Conference on hydrogen & Fuel Cell. Jun. 2009, ISUT, Tehran, Iran.

84. **M. Zhiani**, H. Gharibi, A. A. Entezami, K. Kakaei, M. Javaheri, *Development of Nafion-Polyaniline Nano-Composite for Fuel Cell Application*, 2nd International Congress on Nanoscience and Nanotechnology, October 2008, Tabriz, Iran.

85. *NOVEL NANOSTRUCTURE ANODE FOR DIRECT METHANOL FUEL Cell (DMFC)*, 2th Iranian Fuel Cell Seminar, 2008

86. *Monitoring of the Anode Dry Out at High Current Density in H₂/O₂ and H₂/air PEMFC Stack*, 2th Iranian Fuel Cell Seminar, 2008

87. *Introduction of New Class of Nano-Catalysts for Direct Alcohol Fuel Cells*, 2nd International Congress on Nanoscience & Nanotechnology, 2008

88. *Development of Nafion-Polyaniline Nano-Composite for Fuel Cell Application*, 2nd International Congress on Nanoscience & Nanotechnology, 2008
89. *Development of Low Cost Direct alcohol Fuel Cells (DAFCs) for Portable and automotive applications*, 2th Iranian Fuel Cell Seminar, 2008
90. **M. zhiani**, H. Gasteiger, X. Ren, S. Catanorchi, M. Piana, A. Tampucci, P. Bert, C. Bianchini, F. Ceconi, *Introduction of New Class of Nano-Catalysts for Direct Alcohol Fuel Cells*, 2nd International Congress on Nanoscience and Nanotechnology, October 2008, Tabriz, Iran.
91. **M. Zhiani**, H. Gasteiger, X. Ren, C. Bianchini, P. Bert, A. Tampucci, *Development of Low Cost DAFCs for Portable and Automotive Applications*, Second fuel cell congress, 15-16 October 2008, Khaje Nasir Toosi university of technology, Tehran, Iran
92. **M. Zhiani**, H. Gharibi, K. Kakaei, B. Rezaei, *NOVEL NANOSTRUCTURE ANODE FOR DIRECT METHANOL FUEL CELL (DMFC)*, Second fuel cell congress, 15-16 October 2008, Khaje Nasir Toosi university of technology, Tehran, Iran
93. **M. Zhiani**, C. Bianchini, H. Gharibi, *Monitoring of Anode Dry Out at High Current Density in H₂/O₂ and H₂/air PEMFC Stack*, Second fuel cell congress, 15-16 October 2008, Khaje Nasir Toosi university of technology, Tehran, Iran
94. **M. Zhiani**, H. Gharibi, C. Bianchini, P. Bert, A. Tampucci, X. Ren, M. Kheirmand, M. Alavi, K. Kakaei, *Performing of direct methanol fuel cell (DMFC) using new nanostructure anode*, 5-11 August 2007, Turin, Italy.
95. **Zhiani**, H. Gharibi, M. Kheirmand, K. kakaei, H. A. Heydari, R. Mirzaie, M. Javahery, A. A. Entezami, *Optimization of Nafion content in polyaniline modified gas diffusion electrodes for PEMFC*, 13-14 September 2006, Turin, Italy.
96. **M. Zhiani**, M. Kheirmand, K. kakaei, H. A. Heydari, R. A. Mirzaie, A. A. Entezami, H. Gharibi, *Electrochemical investigation of novel membrane-electrode assembly (MEA) Nanostructure in polymer electrolyte fuel cells (PEMFCs)*, 6th Biennial Electrochemistry Seminar of Iran (6BESI), 7-9 Sep. 2005, page 90.
97. H.A. Heydari, **M. Zhiani**, M. Kheirmand, K. kakaei, R. A. Mirzaie, A. A. Entezami, H. Gharibi, *Optimization of Nafion content in polyaniline modified gas diffusion electrode for oxygen reduction reaction (ORR)*, 6th Biennial Electrochemistry Seminar of Iran (6BESI), 7-9 Sep. 2005, page 48.
98. K. kakaei, **M. Zhiani**, M. Kheirmand, H. A. Heydari, R. A. Mirzaie, A. A. Entezami, H. Gharibi, *Effect of positive potentials on performance of platinum-modified polyaniline electrode in oxygen reduction reaction*, 6th Biennial Electrochemistry Seminar of Iran

99. H. Gharibi, **M. Zhiani**, A. A. Entezami, R. A. Mirzaie, M. Kheirmand, K. kakaei, H. A. Heydari, **High performance GDE for PEMFCs**, presented in 207th Meeting of electrochemical society - Quebec City, Canada, May 15-20, 2005.

100. H. Gharibi, **M. Zhiani**, A. A. Entezami, R. Abdullah Mirzaie, M. Kheirmand, K. kakaei, **Investigation of Polyaniline Impregnation on the performance of GDE in PEMFC**, presented in ninth grove fuel cell, 4-6 October, 2005, London.

101. H. Gharibi, **M. Zhiani**, A. A. Entezami, R. A. Mirzaie, M. Kheirmand, K. Kakaei, **A Comparative Study on Polyaniline Modified Cathodes in PEMFC**, 2nd International Conference on Polymer Batteries and Fuel Cells, Las Vegas, Nevada, USA June 12-17, 2005.

102. **M. Zhiani**, M. Kheirmand, M. kakaei, H. A. Heydari, R. A. Mirzaie, A. A. Entezami, H. Gharibi, **Determination of optimal operation conditions in polymer electrolyte fuel cells (PEMFCs)**, proceeding of 7th physical chemistry seminar, 5-11 March, 2005 – isfahan university of technology.

103. M. kakaei, **M. Zhiani**, H. A. Heydari, A. A. Entezami, M. Kheirmand, H. Gharibi, **Preparation and characterization of New gas diffusion electrode based on conductive polymer in oxygen reduction reaction for PEMFC**, proceeding of 7th physical chemistry seminar – isfahan university of technology., 5-11 March, 2005

104. H. Gharibi, **M. Zhiani**, M. Riazzy, **Investigation of ORR according to the crystal structure and electrochemical behavior**, Fuel Cell 2004 Science & Technology conference, 6-7 October 2004, munich-Germany.

105. M. Riazzy, **M. zhiani**, H. Gharibi, **Electrochemical characterization of Pt-Ru/AB alloy catalyst at various temperature for PEMFC**, 5th biennial Electrochemistry seminar, Shahid Bahonar University- kerman- Iran 2003.

106. **M. Zhiani**, H. Gharibi, A. A. Entezami, **Design and Construction of Phosphoric Acid Fuel Cell in Small Scale**-Proceeding of "First Fuel Cell Congress"- Sharif University of Technology- Tehran- Iran 2002 .

107. **M. Zhiani**, H. Gharibi, A. A. Entezami, **Preparation of nafion – polyaniline-platinum composite film and application in fuel cell** – Proceeding of "First Fuel Cell Congress"- Sharif University of Technology- Tehran- Iran 2002 .

108. H. Gharibi, **M. Zhiani**, A. A. Entezami, **Preparation and evaluation of modified gas diffusion electrode using polyaniline in the fuel cell based on acid-doped polybenzimidazole**, 7th Fuel Cell symposia, 11-13 september 2001, [P2a.16] queen Elizabeth conference center London, uk.

109. *M. Zhiani, H. Gharibi, A. A. Entezami, preparation and Evaluation of Gas Diffusion Electrode using conductive polymer in Phosphoric acid fuel cell, 10-12 March, 2001, Kish Island-Iran*

Innovation

1- Air breathing direct sodium borohydride fuel cell

No: 70572- Country: Iran-

2- Air breathing direct ethanol fuel cell

No: 70573-Country: Iran

3- Effect of ionic liquid structure on the performance of anode catalyst in DMFC

No: 66919-Country: Iran

4- Preparation of Novel Nanostructure PANI/Pt/C for using in DMFC anode

No: 59067 Country: Iran- Confirmed by IROST

5- Design and Construction of novel membrane electrode assembly nanostructure using modified electrodes.

No: 12302 Country: Iran- Confirmed by IROST

6- Gas Supply Subsystem for fuel cell application

No: 33179-Country: Iran

7- Construction of Hydrogen Gas Generator by using Anion Exchange Membrane and non-Precious Metals

No: 92179- Country: Iran

8- Development a Process for MEA Construction by Using Graphene Nano-particles in Decathlon Method

No: 88794-Country: Iran